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The faculty and curriculum of 142 colleges were classified according to the six personal orientations of the Environmental Assessment Technique (EAT). The basic sources of data for this study were the 1968 catalogs of the colleges used by Pace in his study of norms for the College and University Environment Scales and the colleges participating in studies conducted by the American College Testing Program. The basic procedure used was to count the number of courses and faculty members which fell into each of the six personal orientation types. Three sets of profile scores resulting from the study were examined: (a) the original profile for the college, (b) the profile after elevation was removed, and (c) the profile after elevation and scatter were removed. The profile scores obtained which measure the college environment independent of student characteristics, appear to reveal differences in the emphasis given by colleges to various aspects of the curriculum, are fairly reliable, and are related to other measures of the college environment. (PS)

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Faculty and Curriculum as Measures of College Environment

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Psychologists typically treat behavior as a function of an interaction between the individual and his environment. Accordingly, psychologists studying higher education have devoted considerable effort to developing ways of describing college environments. Empirical descriptions have been developed by factor analyzing various measures obtained from public records (Astin, 1962, 1965; Richards, Rand, & Rand, 1966, 1968). Pace and Stern (1958) developed the College Characteristics Index, which views the environment in terms of needs--press personality theory. Pace (1963) later developed the College and University Environment Scales (CUES), which uses five scales to assess the perceived atmosphere of colleges. Astin (1968) viewed the environment simply as a set of potential stimuli for students.

Still another way to describe college environments (Astin & Holland, 1961) is the Environmental Assessment Technique (EAT), which attempts to assess the environment in terms of eight characteristics of the student body: its size, average inteiligence, and six "personal orientations"--

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[1]This study was conducted while Dr. Richards was at the Center for the Study of Evaluation of Instructional Programs, University of California, Los Angeles. Financial support for CSEIP is provided by the U.S. Office of Education.

Realistic, Intellectual, Social, Conventional, Enterprising, and Artistic--based on the proportion of students in each of six classes of major field. EAT is a direct outgrowth, of course, of Holland's theory of vocational choice (1959, 1966a).

Although it is moderately correlated with several other measures of college environment (Astin & Holland, 1961; Astin, 1963; Pace, 1967), EAT has been strongly criticized (Yonge, 1965; McConnell, 1968). The criticisms have emphasized two points: (a) that EAT confounds environmental characteristics with student characteristics, and (b) that last year's graduates cannot be the environment of this year's students. These criticisms are valid, but the notions underlying EAT seem plausible. Moreover, viewing the environment in terms of the six types makes it possible to derive theoretical predictions about student-environment interactions (Holland, 1966a).

The present paper represents an attempt to overcome some of these difficulties of the EAT. Traditionally, the two most important aspects of the college environment are the faculty and the curriculum. Accordingly, in this study the faculty and the curriculum were classified according to the six personal orientations.

Method

The basic sources of data for this study were 1968 catalogs obtained from 142 colleges. These colleges consisted of the 100 colleges used by Pace (1967) in his study of norms for CUES and the colleges participating in two longitudinal studies conducted by The American College Testing Program. The basic procedure was to count the number of courses and of faculty members that fell into each of the six types.

Because the catalogs at some universities are so large, not all courses and faculty members were counted. Rather, four disciplines representative of each type were chosen, and we counted only the number of faculty members and courses for these disciplines. The specific disciplines assigned to each type are shown in Table 1. For the most part, the assignment of disciplines to types is based on Holland's empirical classification of occupations and major fields (1966b). In order to have four fields for each type, it was necessary to use a few fields consistent with Holland's theory but not included in his study. As a check on the variables used in the EAT, we also obtained the number of undergraduate degrees awarded in the same disciplines in 1966 (U.S. Office of Education, 1967). To estimate the reliability of faculty and curriculum as measures of environment, we also obtained data for 51 of these colleges from their catalog for 1948.

In order to have scores for the curriculum, faculty, and degrees that could be compared at least crudely to each other, we converted each separately to normalized standard scores with a mean of 50 and a standard deviation of 10 (Guilford, 1956, pp. 494-501). Since we also wished to be able to estimate the relative emphasis on each of the six types, we transformed the total distribution rather than making a separate transformation within each type.

The six transformed scores for an individual college comprise a profile. Like all profiles, it must be analyzed in terms of three components: elevation, scatter, and shape (Cronbach & Gleser, 1953). Elevation is simply the mean of the scores comprising the profile. In this study, elevation should reflect mainly the size of the college. Scatter is proportional to the standard

deviation of the profile scores. In this study, colleges with high scores have curricula and faculty falling predominantly in a few fields, while colleges with low scores have them distributed fairly evenly across fields. Therefore, scatter is similar to the measure "homogeneity" derived from EAT (Astin & Holland, 1961). Shape is measured by the six profile scores for a college after these profile scores are equated for college mean and standard deviation. In the present study, we examined three sets of profile scores: (a) the original profile for each college, (b) the profile after elevation was removed by equating the college means at a value of 50, (c) the profile after elevation and scatter were removed by converting scores within colleges to standard scores with a mean of 50 and a standard deviation of 10.

Results and Discussion

The means and standard deviations for the various profile scores are shown in Table 2. These results suggest that in the total groups of colleges there is considerable variation in the emphasis given various orientations. In each case, the difference between the mean of the lowest personal orientation and the mean of the highest orientation exceeds one standard deviation, and in most cases it approaches or exceeds two standard deviations. In the case of the faculty and the curriculum, the highest means are those for the Artistic orientation, suggesting that American colleges are still dominated by the traditional emphases. The profiles of means for curriculum, faculty, and degrees appear basically similar but have enough variation to suggest that such profiles could be used to explore questions such as the relative

influence of faculty vs. student cultures. This conclusion is strengthened by the correlations shown in Table 3 between corresponding profile scores for curriculum, faculty, and degrees.

The correlations between 1948 and 1968 profiles are shown in Table 4. These correlations range from moderate to high, suggesting that the reliabilities of the profile scores are satisfactory, and that the profiles are tapping stable characteristics of the college environment. However, these correlations also indicate that some changes have taken place over the last 20 years. This suggests that our technique could be used to study the history of college environments, a problem that cannot be investigated with other techniques for environmental assessment.

The information contained in each profile can be summarized by eight scores: elevation, scatter, and the six personal orientation scores equated for elevation and scatter. Tables 5, 6, and 7 show the correlations between these scores and other measures of the environment. Specifically, we correlated the profile scores with scores from two studies by Astin (1962, 1965) and with scores from CUES[2] (Pace, 1963, 1967). In general, these correlations support the construct validity of our profile scores. More than half of the correlations are significant, and each of the other environmental measures is significantly correlated with several profile scores.[3] The correlations range from low to moderate with scattered high coefficients.

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[2]We are grateful to Dr. C. Robert Pace for making these scores available to us.

[3]It should be recognized, however, that these scores for the personal orientations are ipsative, so the significance tests are not completely independent.

For the most part, the correlations are consistent with the presumed meaning of the scales and profile scores. In a few cases there are discrepancies between the profile scores and Astin's measures. The reasons for these differences are uncertain, but they may result from differences in methodology. We assigned fields to only a single type, while in some cases Astin distributed them across types by weights. Holland's (1966b) later empirical classification of occupations suggests that some of the weights may have been inappropriate.

To summarize, our profile scores measure the college environment independent of student characteristics, appear to reveal meaningful differences in the emphasis given by colleges to various aspects of the curriculum, are fairly reliable, and are related in meaningful ways to other measures of the college environment. Moreover, our measures make it possible to study new problems, such as the history of college environments, and make it easier to study other problems such as differences in college environments among nations, the effects of differences between student and faculty cultures, and student-environment interactions. As always, a number of questions are unanswered. For example, we might have obtained somewhat different results if we had classified the entire faculty and curriculum, or if we had used class schedules rather than catalogs as our source of data. Nevertheless, the method used here appears to be a promising approach worthy of further study.

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Table 1

Fields Assigned to Each of the Types

Type	Field
Realistic	Agronomy or forestry
	Civil engineering
	Geography
	Mechanical engineering
Intellectual	Astronomy
	Chemistry
	Mathematics
	Physics
Social	Education
	Nursing
	Sociology
	Theology and religion
Conventional	Accounting
	Finance
	Library science
	Office administration, secretarial science, and business education
Enterprising	Business administration and marketing
	Economics
	Management
	Political science
Artistic	Art and sculpture
	English
	Music
	Philosophy

Table 2

Means and Standard Deviations for Profile Scores

	Curriculum		Faculty		Students	
	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
Original profile						
Realistic	43.07	10.20	44.80	9.93	46.42	12.64
Intellectual	53.42	5.56	53.71	7.80	50.84	5.98
Social	50.57	6.65	52.66	8.89	53.39	9.93
Conventional	41.21	6.44	41.97	7.11	44.61	8.40
Enterprising	50.07	7.05	50.18	7.54	52.70	9.56
Artistic	61.36	7.90	56.35	7.30	52.84	7.77
Original profile with elevation removed						
Realistic	43.12	6.38	44.85	5.42	46.24	8.92
Intellectual	53.51	3.77	53.77	3.23	50.72	3.91
Social	50.65	4.30	52.68	4.78	53.28	6.99
Conventional	41.28	4.58	41.97	4.70	44.47	5.33
Enterprising	50.13	3.01	50.21	3.03	52.60	5.00
Artistic	61.46	4.54	56.38	2.90	52.67	4.35
Original profile with elevation and scatter removed						
Realistic	41.51	7.19	41.59	7.97	43.67	12.18
Intellectual	54.37	4.49	55.94	4.46	50.20	6.23
Social	50.68	5.48	54.66	6.88	55.86	9.36
Conventional	38.89	4.98	37.42	5.48	41.14	7.13
Enterprising	49.99	4.03	50.02	4.80	54.73	7.11
Artistic	64.73	4.67	60.39	4.33	54.20	6.14
Elevation	49.94	5.90	49.94	7.04	50.13	7.07
Scatter	7.79	2.08	6.24	1.92	6.41	2.38

Table 3

Correlations Between Corresponding Profile Scores

for Curriculum, Faculty, and Undergraduate Degrees

	Correlations		
	Curriculum vs. faculty	Curriculum vs. degrees	Faculty vs. degrees
Original profile			
Realistic	93	87	91
Intellectual	80	71	81
Social	80	70	82
Conventional	71	78	74
Enterprising	85	81	85
Artistic	77	72	83
Original profile with elevation removed			
Realistic	84	77	83
Intellectual	64	66	50
Social	60	35	65
Conventional	65	69	55
Enterprising	55	54	62
Artistic	53	55	59
Original profile with elevation and scatter removed			
Realistic	86	81	78
Intellectual	56	55	33
Social	63	36	65
Conventional	63	58	50
Enterprising	58	55	60
Artistic	52	29	46
Elevation	89	89	93
Scatter	45	27	57

Note. Decimal points have been omitted from this table.

Table 4

Correlations between 1948 and 1968 Measures
(N = 51)

	Correlations	
	Curriculum	Faculty
Original profile		
Realistic	88	91
Intellectual	73	87
Social	86	91
Conventional	74	51
Enterprising	79	75
Artistic	80	79
Original profile with elevation removed		
Realistic	84	86
Intellectual	70	60
Social	63	82
Conventional	73	61
Enterprising	63	54
Artistic	68	70
Original profile with elevation and scatter removed		
Realistic	88	86
Intellectual	75	41
Social	62	79
Conventional	68	65
Enterprising	53	51
Artistic	81	65
Elevation	86	87
Scatter	45	63

Table 5

Correlations between Curriculum Profile Scores and Other Environmental Measures

Environmental measures	Curriculum Profile Scores							
	Elevation	Scatter	Realistic	Intellectual	Social	Conventional	Enterprising	Artistic
Astin (1966) N=139								
Intellectualism	-10	25**	32**	41**	-23**	-43**	21*	-37**
Estheticism	-10	34**	04	-01	09	-19*	04	01
Status	-16	21*	-24**	01	13	-23**	45**	07
Pragmatism	37**	-06	64**	24**	-40**	-38**	-01	-36**
Masculinity	03	08	19*	27**	-25**	-16	24**	-28**
Selectivity	00	24**	20*	33**	-06	-49**	29**	-33**
Size	89**	-03	45**	-33**	-21*	-44**	21*	15
Realistic orientation	33**	-11	66**	18*	-41**	-30**	-16	-25**
Intellectual orient.	-20*	02	22**	51**	-22**	-28**	11	-42**
Social orientation	01	-12	-43**	-45**	37**	38**	-23**	45**
Conventional orient.	39**	-15	-03	-22**	04	-16	37**	10
Enterprising orient.	-09	16	-27**	-05	17*	-12	44**	07
Artistic orientation	-16	14	-54**	-39**	37**	29**	05	44**
CUES N=106								
Practicality	40**	-33**	07	-35**	-03	18	-28**	38**
Community	-31**	-01	-31**	02	26**	25**	-10	07
Awareness	11	16	-13	-26**	22*	-15	23*	20*
Propriety	-25**	08	-31**	-11	39**	36**	-23*	01
Scholarship	-03	17	12	17	-03	-20*	12	-22*

Table 5 cont'd.

	Elevation	Scatter	Realistic	Intellectual	Social	Conventional	Enterprising	Artistic
Astin (1962) N=79								
Affluence	-17	18	22*	38**	-04	-47**	17	-36**
Size	82**	-02	46**	-29**	-11	-34**	06	04
Masculinity	16	-18	43**	27*	-41**	-18	07	-28*
Homogeneity	-61**	11	-14	57**	-20	32**	-09	-38**
Realistic	37**	-13	58**	09	-37**	-18	-28*	-09

*p < .05; **p < .01

Table 6

Correlations between Faculty Profile Scores and Other Environmental Measures

			Faculty Profile Scores					
	Elevation	Scatter	Realistic	Intellectual	Social	Conventional	Enterprising	Artistic
Astin (1966) N=139								
Intellectualism	00	15	33**	58**	-49**	-27**	21**	-32**
Estheticism	-05	19*	-01	04	-04	-06	03	10
Status	-10	03	-25**	16	-12	-26**	59**	20*
Pragmatism	34**	01	64**	43**	-43**	-33**	-01	-52**
Masculinity	01	00	21*	44**	-47**	-20*	36**	-27**
Selectivity	14	27**	24**	41**	-33**	-23**	23**	-25**
Size	93**	24**	35**	-03	01	-33**	03	-17*
Realistic orientation	29**	-02	64**	35**	-37**	-27**	-15	-43**
Intellectual orient.	-14	-03	29**	50**	-39**	-19*	07	-32**
Social orient.	-01	-03	-44**	-60**	65**	28	-26**	36**
Conventional orient.	37**	-14	-06	-14	08	-20*	34**	04
Enterprising orient.	-11	-05	-28**	06	-09	-21*	55**	25**
Artistic orient.	-15	12	-57**	-42**	34**	23**	10	55**
CUES N=106								
Practicality	28**	-23*	06	-43**	26**	05	-23*	11
Community	-32**	-20*	-27**	-23*	19*	20*	-09	22*
Awareness	16	-04	-22*	-08	16	-12	21*	16
Propriety	-31**	-10	-29**	-32**	32**	33**	-25**	23*
Scholarship	07	02	11	21*	-10	-15	07	-17

Table 6 cont'd.

	Elevation	Scatter	Realistic	Intellectual	Social	Conventional	Enterprising	Artistic
Astin (1962) N=79								
Affluence	-03	16	20	53**	-28*	-35**	23*	-30**
Size	84**	-02	34**	-08	14	-27*	-15	-26*
Masculinity	13	-20	38**	35**	-38**	-18	13	-26*
Homogeneity	-48**	30**	-01	22*	-36**	40**	-04	-07
Realistic	31**	-09	55**	23*	-26*	-20	-27*	-28*

*p < .05; **p < .01

Table 7

Correlations between Profile Scores for Undergraduate Degrees and Other Environmental Measures

			Profile Scores for Undergraduate Degrees					
	Elevation	Scatter	Realistic	Intellectual	Social	Conventional	Enterprising	Artistic
Astin (1966) N=139								
Intellectualism	-01	10	48**	34**	-68**	-58**	28**	09
Estheticism	-10	11	08	08	-07	-38**	-05	39**
Status	-04	-18*	-22**	18*	-31**	-50**	66**	55**
Pragmatism	38**	00	70**	-08	-44**	-22**	13	-53**
Masculinity	07	00	29**	14	-54**	-23**	46**	-16
Selectivity	12	16	32**	26**	-57**	-45**	24**	21*
Size	92**	07	42**	-56**	-07	-11	19*	-20*
Realistic orientation	28**	01	68**	-09	-32**	-11	-11	-53**
Intellectual orient.	-13	-01	32**	45**	-52**	-39**	20*	-08
Social orientation	-07	-04	-54**	-26**	77**	42**	-40**	17*
Conventional orient.	50**	-30**	-03	-37**	-14	-05	65**	-01
Enterprising orient.	-02	-22**	-21*	07	-29**	-38**	72**	43**
Artistic orient.	-17*	-01	-60**	-07	41**	14	-10	60**
CUES N=106								
Practicality	31**	-26**	-04	-43**	35**	31**	00	-29**
Community	-34**	-21*	-35**	12	24*	01	-01	23*
Awareness	14	-25**	-10	-12	01	-34**	28**	42**
Propriety	-33**	01	-29**	04	34**	21*	-31**	15
Scholarship	04	-01	16	10	-16	-27**	05	09

Table 7 cont'd.

	Elevation	Scatter	Realistic	Intellectual	Social	Conventional	Enterprising	Artistic
Astin (1962) N=79								
Affluence	-12	05	33**	26*	-49**	-62**	32**	11
Size	90**	-04	39**	-59**	12	-02	15	-41**
Masculinity	16	-04	56**	-19	-45**	-11	34**	-54**
Homogeneity	-66**	55**	-02	63**	-30**	28*	-49**	-05
Realistic	27*	02	65**	-23*	-17	-11	-19	-51**

*p < .05; **p < .01